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**NEW TECHNIQUES FOR CONDUCTING FISH STOCK ASSESSMENTS INTRODUCED IN WEST AFRICA**

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**By Uzman Unis Bah**

The world's most-cited fisheries scientist and the Principal Investigator of the Sea *Around Us* initiative, Dr. Daniel Pauly, conducted a workshop for the Commission sous régionale des pêches from Sept. 22 to Sept. 27, 2019, introducing a new method for fish stock assessments in the data-poor areas of West Africa.



From right, Dr. Daniel Pauly and participants: Image provided by the Sea Around Us initiative.

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According Dr. Pauly, the training was to teach experts in using the new method in assessing how much fish is left in the water; he said, they look at the catch, and at certain properties of the fish to determine the biomass of fish stock. “This is a newly developed method that uses the power of computers to compare thousands of solutions, and the solution that is picked is the one that generates the biomass, that is the population in the sea, that is compatible with the observed catch, and the population growth rate,” he said.



Dr. Maria 'Deng' Palomares (Right) – Image provided by the Sea Around Us initiative.

According to Dr. Maria 'Deng' Palomares, the Project Manager for the *Sea Around Us* initiative, “this area, the western Africa region, covered by the Commission sous régionale des pêches or CSRP is actually a region where there are no official stock assessments. This is because the data that you need for stock assessments is not available. Because of the data-poor situation, you need a special set of assessment tools that can actually do the assessment without too much data, something that is usually needed for many of the other models out there.”

“This stock assessment model that we have proposed, needed only catch data, Catch per Unit of Effort (CPUE) data that are available widely online via FishBase and SeaLifeBase. The way that these stock assessments is done allow for quick results; in 10 minutes, you have something, whereas in other models, it will take a day or more,” Palomares said.

This method allows the user to provide a little bit of the history of the fishery in the analysis. “For example, if I know that in 1960s my population collapsed, I can put that into the analysis. This means that historical and anecdotal data are also useful in this sort of analysis, it's not just quantitative data, it's not just numbers, it's also the knowledge of the fisheries officer who is analyzing the data who is supposed to make sure that all the quantitative and qualitative data are used in the analysis,” Palomares explained

The analysis will determine whether the population has changed over time, if the population was fished to a point of depletion, or is almost to zero, “we would expect that the model would tell us that the biomass at that particular point in time went down. In other words, the model confirms the anecdotal information,” Palomares told Pan African Visions.

The new method introduced will be easily used in the areas where not much data is available. It is simple to explain and implement, and the principles behind it are very simple. Alike West Africa and Southeast Asia where there are no adequate data, those models that require other sort of information like the biomass specific to a certain area cannot be used; because officials in these areas do not have the resources to conduct the research that would allow them to have the biomass data on a regular basis. "CMSY is easy so understand; it's based on traditional principles of stock assessment and does not need much data," Palomares affirmed.

Jessika Woroniak, a research assistant, noted the induction was to introduce the new methods to the fisheries scientists of Mauritania, Senegal, Cape Verde, Gambia, Guinea, Guinea-Bissau, Liberia and Sierra Leone. "The key fisheries indicators resulting from the use of these methods have important implications for fisheries management; what differentiates these methods from other stock assessment techniques is its low requirements of input data. In data-poor settings, these tools can provide the fisheries authorities with the information necessary to manage the exploitation of fish populations sustainably," she told the Pan African Visions.

Introducing these new techniques to fisheries scientists should empower fisheries management authorities, aiding them with the necessary information to make decisions. Such decisions should help mitigate the over-exploitation of fish populations, Woroniak said.



*Image provided by the Sea Around Us initiative.*

Talking of the major challenges in managing fish stocks successfully in the region, Woroniak told Pan African Visions that it is the lack of collaboration between nations sharing these fish populations to prevent overfishing. "Small-pelagic fish populations migrate along the West African coast in- and off-shore, making these species especially vulnerable to overfishing; fishers in all countries target these species where their habitat overlaps with an Exclusive Economic Zone. If countries do not collaborate in managing

fishing effort, they run a high risk of over-fishing and eventually depleting the stock to a point where it can no longer effectively renew itself,” she said.

When asked about possible impact of Sierra Leone’s one month fishing closure in replenish fish stocks, Dr. Pauly said, the one-month fishing closure was not enough. “No, it is not, it cannot be; closing the fishery is a question of reducing the pressure on it, then it should be fewer boats and fishermen. If you want to have a good catch, and if you want the fishery to be sustainable, there should be enough fish left in the water, you cannot take all of them.”



Image by Valentina Ruiz Leotaud – Communication Officer, Sea Around Us Initiative.

The *Sea Around Us* is a research initiative at the University of British Columbia; it has a long-standing relationship with West African countries, working with the Commission sous régionale des pêches, which has helped in catch reforms for the West African countries.

It is expected that the new assessment methods will provide the required data, and will give an enhanced understanding of what is happening to the stocks in the West African region. This will also upscale the fisheries supervision within countries and between countries; and notably for agreements between the West African countries and Europe, as European remains the largest fishers in these areas.

Link: <https://panafricanvisions.com/2020/01/new-techniques-for-conducting-fish-stock-assessments-introduced-in-west-africa/>